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ABSTRACT

This report explores the possibility of using the discrepancy measures to assess the implementation of educational innovations. The discrepancy measure was derived from the decision to segment the educational market, and to select or develop marketing strategies, on the basis of discrepancies between the potential user and the requirements of a product. Discrepancies occur because the nature of the product is incompatible with the nature of the user. The first section of the report considers the discrepancy measure in the general context of implementation assessment and indicates that the measure makes a potential methodological contribution in this area. An analysis of existing data, in the second section of the report, indicates that, even in its present form, the measure generates relatively rich data on implementation and permits a rough classification of different implementation behaviors. A number of modifications which could be made in the measure to make it even more suitable for the collection of implementation data are discussed in the third section of the report. (Author/DN)

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# INTRODUCTION

The Far West Laboratory for Educational Research and Development has recently been conducting work in the application of marketing techniques to the problem of bringing about change in education. In a report on the first stage of this work, Sikorski and Hutchins (1974) describe a study in which the concept of market segmentation was applied in the educational context. For three innovative products, schools were grouped into segments that would each require a particular marketing approach from a change agent wishing to promote innovation. The present report is an outgrowth of that study; it is based upon a secondary analysis of the data generated by the measure used to segment the market of schools. This measure, called the discrepancy measure, was derived from the decision to segment the market, and to select or develop marketing strategies, on the basis of discrepancies between the potential user and the requirements of a product. As Sikorski and Hutchins state:

> Discrepancies occur because the nature of the product (the need it addresses, the incentives relevant to its adoption, and its philosophical slant) is incompatible with the nature of the user (his needs, his perception of incentives, his beliefs). Discrepancies also arise between the circumstances for using the product (resources required, adoption convenience) and the resources or tolerances of the user.

Examples of particular discrepancies and of the questions included in the discrepancy measure are presented in Appendix A.

This report explores a potential application of the discrepancy measure to the assessment of implementation. We decided to explore this extension of the measure's usefulness when the measure unexpectedly yielded data relevant to innovation implementation. It was found that the discrepancy information, which was collected for marketing segmentation purposes, appeared to include considerable data relating to the way the innovative products were used in the schools where they had been adopted. Thus, the discrepancy measure showed promise as a way of illuminating the conditions of use and the extent of success of the innovation in the school setting. In other words, in addition to providing information that divides the market into segments with characteristic discrepancies for an innovative product (as discussed by Sikorski and Hutchins), the measure can uncover information on what happens after adoption--what problems are encountered and what adjustments are made in the implementation process.

This application of the discrepancy measure may represent a contribution to the available methodology in implementation assessment, since it provides a way of eliciting self-reports in a relatively non-threatening manner. The information it can gather has value for several reasons. The assessment of innovation implementation is taking on growing importance in such contexts as the evaluation of innovations' effects. Another use for implementation assessment data is more germane to dissemination and diffusion: by learning more about the different ways a product may be implemented, the marketer puts himself in a better position to work with nonadopters. The information he gathers on implementation problems and their solutions will form patterns which are likely to be repeated in the experience of future adopters. One

section of this report, based on an exploratory analysis of presently available data, provides an example of a set of categories that a marketer might use to characterize implementation patterns. The reader will see how a marketer armed with this set of categories would be able not only to promote the adoption of an innovative product, but also to conduct a marketing campaign designed to forestall or overcome eventual problems in the implementation phase.

The discovery that implementation assessment data has been collected by a measure which had marketing analysis as its primary purpose generated the present exploration of this additional dimension of the discrepancy measure. The report is speculative in nature. Although a data analysis is reported, it is an analysis which was conducted on an exploratory and tentative basis, and the remainder of the chapter is primarily hypothetical in tone.

This report first considers the discrepancy measure in the general context of implementation assessment, examining its relationship to the major variables and major methodological approaches currently being applied in the area. Then, as an example of the application of the discrepancy measure to implementation assessment, an exploratory analysis of available data is reported. The report concludes with a discussion of modifications in the measure which might make it more suitable for purposes of implementation assessment without compromising its value for market analysis.

## ASSESSMENT OF IMPLEMENTATION IN EDUCATION

To examine the particular strengths and weaknesses of a measure when it is applied to a new field, it is necessary to place it in the context of existing approaches in that field. Thus, the value and the limitations of the discrepancy measure in implementation assessment must be studied against a background of the relevant dimensions of implementation assessment--what should be measured; and the major methodological approaches--how it is now being measured. In this section, we describe prevailing methods of assessing educational innovation implementation, and we discuss the methodological characteristics of the discrepancy measure in relation to these approaches. Next, some major variables involved in implementation assessment are described, and the extent to which the discrepancy measure could collect information on these variables is discussed.

### Implementation Assessment Methodology

Methods of data collection for assessment of implementation include the examination of documented records, the observation of implementation, and self-report techniques such as personal interviews or self-administered questionnaires. The discrepancy measure belongs to the third category, self-report techniques. Documented records kept by the implementors can provide demographic data, accounts of the planned implementation strategies, information about the antecedents and the development of such strategies, and descriptive assessments of capabilities to implement. This information can provide a baseline understanding of the planned development of implementation capability and the recorded outcomes in each implementation phase. Observational techniques can employ trained observers who structure their observations

to assess what is taking place along virtually any dimension relevant to evaluation of the implementation.

Most assessments of implementation must depend primarily upon self-report techniques, however. Documented records are usually not structured for purposes of implementation assessment, and much of the information they contain is inappropriate or incomplete. Observational techniques may pose problems because they are time-consuming and therefore expensive. Since it is seldom practical to field an extensive observational effort in an assessment of implementation, in most cases observational data are collected only to provide a validity check for other methods of data collection. Self-report techniques, however, can be structured to provide data specifically appropriate to assessment of implementation, and the data can be collected at reasonable cost.

But while they are the most viable means of collecting data for assessing implementation, self-report techniques also have limitations from a methodological point of view. These limitations have been noted in research reports concerned with the assessment of implementation in educational settings. For example, one study has pointed to the problem of assessing the degree of implementation when there is exclusive or nearly exclusive dependence upon subjective personal assessments (Gross, et al, 1971), and another has noted evidence that in self-reports of implementation there are often discrepancies between what teachers say they are doing and what they are actually doing in their classrooms (Goodland, et al, 1970). Analysis of data in the present study has indicated that conflicting self-reports are often obtained from teachers and principals regarding the same implementation activities.

These inaccuracies in self-reports arise because of differing viewpoints and the ubiquitous problem of selective perception.

The discrepancy measure is also a self-report technique, and, as such, it is not free of selective perception validity bias. But this measure differs in one important way from other self-report techniques applied to the assessment of implementation: the discrepancy measure is an indirect self-report. Other kinds of self-reports tend to be characterized by inaccuracy with regard to negative aspects of implementation because of the reluctance of informants to reveal problems that could be construed as failures on their part. As an indirect self-report, the discrepancy measure focuses the informants' attention on problems or failures of the product or innovation. By tending to focus blame externally in this manner, the measure may lessen an informant's sensitivity to discussing problems and failures, although any discrepancies discussed may actually be as much the fault of the implementor as of the product or innovation.

The discrepancy measure's indirectness, which allows a somewhat unobtrusive assessment of negative aspects of implementation, is one of the measure's unique potential strengths in the context of implementation assessment. Selective perception and the resultant validity baises are minimized if data collection regarding implementation problems can be performed in a manner that is not threatening to informants. The discrepancy measure, by focusing attention on the product or innovation, fosters a tolerant atmosphere which permits the collection of more complete and accurate data regarding negative aspects of the implementation process.

## Implementation Assessment Variables

Basically, the assessment of implementation can be conceived as consisting

of three sets of variables. The first of these sets of variables involves the participants' Motivation to Accept innovation, the second the Development of Implementation Capability, and the third the Implementation Outcomes. That is, data collected for implementation assessment generally include background information about the school implementation setting and implementation plans; information about the motivation, knowledge, and behavior of participants in the implementation process; and information about the outcomes, or what is taking place once the innovation is considered to be implemented. Each of these sets is a composite of individual variables, all of which might be examined within the scope of a complete evaluation of an implementation process.

Although Motivation to Accept innovation can be considered a function of a number of lower level variables, these consist of only two basic types. One type includes variables describing the characteristics of the implementation setting which are relatively set and which are generally accepted as situational "givens." An example would be student abilities and achievements. The other type includes attitude and opinion variables, such as teachers' views on a content area, which are more readily subject to change. The discrepancy measure as it is presently constituted does not assess very many fixed characteristics of the implementation setting; however, there is no reason why a similar measure could not do so. The existing measure does assess, at least in an indirect manner, attitude and opinion variables relating to motivation to accept innovation.

Among the variables describing relatively fixed characteristics are included some demographic characteristics of the implementors which may determine how amenable they are to innovation in general or innovation of a particular kind. Such variables as knowledge and prior experience related to the innovation (in either a general or specific sense) are relevant in this context. The

Information discrepancy concerns staff memebers' knowledge of the particular innovation. Student abilities and subject area knowledge may profoundly influence motivation to accept an innovation, as in the familiar case where decision makers seek improved student performance in a particular subject like reading. Some other relatively fixed variables are related to types of school organization and may be touched upon by the Administrative Requirements discrepancy. Are the classrooms "self-contained" or "open"; is the administrative structure rigidly hierarchical; are students "tracked?" The answers to questions like these will clearly influence motives to accept a particular innovation, and the researcher should note whether present organizational arrangements are like the ones that the innovation tends to promote, and also whether the implementors favor a change.

While not all of the fixed characteristics just mentioned are directly assessed by the discrepancy measure, the discrepancy approach in general represents a highly appropriate way to assess them. Its underlying philosophy is that the congruences and discrepancies between an innovation and a school's present state can provide valuable information about innovation adoption. The implications for eventual innovation implementation that can be found in similar areas of potential discrepancy suggest strongly that the discrepancy approach has value in implementation assessment.

Motivation to Accept variables of the second type (attitudes and opinions) include: attitudes towards the general conceptual or content area of which the potential innovation is a part, attitudes towards the specific products that are the primary means of implementation, and the extent to which the proposed innovation is congruent with educational goals already espoused. The discrepancy measure in its present form does assess these variables along

with attitudes towards educational innovation in general, attitudes towards competing priorities for educational innovation, and the percieved value that the local educational agency and the community place on the particular innovation being proposed for implementation. Relevant discrepancy labels include Developer, Effect, Priority, Programmed, Structured, Subject Matter, and Theory.

The second major set of implementation variables is that which refers to the Development of Implementation Capability. This set of variables includes the process of cultivating organizational and individual skills and orientations necessary for the implementation effort to proceed satisfactorily. An assessment of capability development should include information about objectives, procedures, roles and resources. The discrepancy measure probably provides more direct and complete information regarding this area of implementation assessment than any other.

One major variable concerns the way the implementation effort is structured in the educational setting and the way information about the structure is communicated to participants. This variable includes authority structures, decision-making procedures, and the scope and nature of implementation plans and rules. Those portions of the discrepancy measure which assess the degree to which the innovation requires changes or reorganization in the purchasing or adopting unit--the discrepancies labeled Disruptiveness and Unit of Adoption--provide information relevant to these implementation variables.

Another Implementation Capability variable is that of staff development. The discrepancy measure provides information relevant to this variable in the discrepancy called Training, which assesses the degree of acceptability of the teacher training required for effective use of an educational innovation. A

third Implementation Capability variable concerns peer relationships. The relationships between individual implementors and their peers in their own and other schools, especially in the interactions they have concerning the innovation, may influence the development of support patterns and implementation capability. The discrepancy measure touches upon this aspect of implementation in its assessment of the degree to which an individual teacher perceives others as approving the innovation. This assessment comes under the headings of Bandwagon and Peer Opinion.

A final Implementation Capability variable is that of resources. This variable includes the extent to which adequate planning time, instructional materials and resources, and information about their availability are present as part of the implementation effort in an educational setting. The discrepancy measure collects information relevant to this implementation variable through its assessments of discrepancies in such areas as Cost, External Support, Materials, Personnel, Space, and Time Required.

The last major set of variables is that of Implementation Outcomes. Implementation Outcomes can be considered a function of quantity, quality, and durability variables. Although Implementation Outcome variables are, of course, closely related to Motivation to Accept and Implementation Capability variables, the discrepancy measure probably provides less information directly relevant to Implementation Outcomes than to the other two sets of implementation variables.

The variable of implementation quantity might include such facts as the number of administrative units involved in the implementation effort, the number of participants (both implementors and students), and the distribution of the participants on demographic characteristic variables. The discrepancy

measure touches on this variable when it assesses, for example, what porportion of a school's teachers have used a Minicourse. Also included in this variable would be the number and distribution of innovation activities and products, the amount of time devoted to implementation, and the distribution of that time. Such discrepancy measures as Materials and Time Required may yield some information on implementation quantity. However, as it is presently structured the discrepancy measure does not provide extensive data on this variable.

The same may substantially be true with regard to the variable of implementation quality, although the discrepancy measure provides opportunities for indirect inferences regarding implementation quality. Implementation quality includes the relationship between goals and objectives and capabilities, and the extent to which goals are met. The quality variable also covers the systematic examination and selection of materials and activities furthering innovation, the degree of preparation for intensive implementation, the use of particular instructional techniques, and exceptional student achievement and retention.

The implementation quality variable could also include consideration of the extent to which materials were adapted for special needs, or the innovation was put into practice beyond the specified implementation procedures. In these aspects of implementation quality assessment the discrepancy measure might yield relevant information. One portion of the discrepancy measure, Adaptability, concerns the degree to which the innovation is adaptable or amenable to revision for the specific purposes of the innovator, and this information could include evidence of creative adaptation.

The last major Implementation Outcome variable is innovation durability. Inferences from other outcome variables, such as measures of large implementation quantity and high implementation quality, are often used to determine or estimate durability. In addition, future plans for implementing the innovation or following up present implementation efforts may be examined. The discrepancy measure provides little direct information regarding implementation durability, but it may provide indirect information. For example, it might be assumed that an implementation situation in which a great deal of discrepancy is measured will probably not result in innovation durability. This kind of assumption could be tested as a further check on the measure's validity.

In general, the discrepancy approach does appear to be capable of providing information relevant to the assessment of implementation. Still, although the approach has considerable potential usefulness in this regard, the existing discrepancy measure is not uniformly applicable over the entire range of implementation variables. It provides the most direct information in the area of Development of Implementation Capability and somewhat less direct information in the areas of Motivation to Accept innovation and Implementation Outcomes (although in this last area it may have predictive value). The kinds of information yielded by the existing measure, along with the uses for such information, are examined in a more specific and detailed manner in the next section.

## AN APPLICATION OF THE DISCREPANCY MEASURE TO IMPLEMENTATION ASSESSMENT

The discrepancy measure was designed exclusively for purposes of examining and then segmenting the market for innovative educational products. Using the measure, data were collected in reference to three specific educational products. An analysis of the results of this application is presented in another report (Sikorski and Hutchins, 1974).

Although the measure was not designed to assess implementation of the three products, in practice it was found to elicit data regarding implementation. Often, along with identifying the discrepancies for a product in his school, a subject would volunteer information about the way these problems had affected implementation, whether by impeding use in some way or by giving rise to adaptive solutions. This unforeseen finding generated the present examination of the measure as a means of assessing implementation. In this section we report the results of a tentative and exploratory analysis of the marketing data to determine what information it contained regarding implementation.

The information volunteered by subjects indicated a variety of possible responses to discrepancies; these were classified into eight categories, five of them positive (e.g., Staff Substitution, or the recruitment of volunteers when paraprofessionals could not be hired), and three of them negative (e.g., Implementation Delay). Responses in each category can be associated with particular kinds of discrepancies. While the set of response categories may be far from exhaustive, it does present a classification scheme which can be helpful to others engaged in implementation assessment. And with further refinement, the associations between particular discrepancies and particular patterns of implementation can provide important guidance for the marketer.

Knowing what kind of accomodation can be made to a discrepancy, he can find a way to offer the most appropriate help to potential adopters who are experiencing that discrepancy. Thus the early adopters of a product will generate suggested procedures that later adopters can follow in order to increase their chances of successful implementation; such procedures can be packaged in some way as part of the marketing strategies designed for different segments of the market.

Because the existing data were not collected for the purpose of assessing implementation, however, the data content amenable to analysis for this purpose was limited. The fact that a discrepancy exists does not necessarily reveal anything about its effect on the implementation process. A discrepancy statement alone is a measure of implementation only in the simplest cases, when the nature of the discrepancy clearly implies either that it effectively blocked implementation or that it was so minor that a successful adaptation undoubtedly occurred and allowed implementation to proceed with little delay. In other cases the statement of discrepancy by itself is merely a statement of a problem or difficulty with no indication of what effect, if any, that problem had on the course of implementation. (Ultimately, through analyses of the kind reported here, it could be learned what accomodations are likely to be prompted by a given discrepancy.)

For purposes of implementation assessment, then, a statement of discrepancy is not complete without an accompanying statement describing the result or effect of the discrepancy on the implementation process. Such statements take the form of a description of the response to the discrepancy, whether this response is successful or not. Some descriptions may be of failures to implement because of the discrepancy, others may be of successful adaptations and continued implementation.

Fortunately, in the present study the information that subjects provided on discrepancies was frequently accompanied by information regarding their responses to discrepancies. (This fact, incidentally, may offer some further support for the logic of tying the discrepancy approach to implementation assessment). But because interviewers were not formally seeking data on implementation, the data were not collected in a systematic way or a standard format. As a result the levels of completeness and comparability in the data do not permit a detailed, quantified analysis. The data are instead treated as partial case studies and are analyzed in an informal way in terms of categories of implementation response to discrepancies.

Eight categories of implementation response have been determined. The first five of these are positive responses, varieties of adaptation to the discrepancy challenges. These include Staff Substitution, Materials Augmentation Equipment Substitution, Administrative Adaptation, and Funding Improvisation. The last three categories of implementation response are predominately negative in character, subsuming cases where implementation was partially or completely impeded as a result of discrepancies. These include Implementation Delay, Partial Implementation, and Potential Abandonment.

The discussion which follows concerns the implementation of three specific educational innovations. Two of these innovations are products consisting of instructional materials, while the third is more of an educational process. These three innovations are described in detail in Appendix B of this report, but it is necessary to note here that inherent differences among products produce differences in the nature and scope of the efforts required for their implementation. Minicourses, developed by Far West Laboratory for Educational

Research and Development, are multimedia, self-instructional courses for pre- or inservice teacher training, and students are only peripherally involved in their implementation. Man: A Course of Study (MACOS), developed by Education Development Center and distributed by Curriculum Development Associates, is a set of multimedia student materials designed to teach social science skills of observation, hypothesizing, and problem solving. Multiunit School/Individually Guided Education (IGE), developed by Wisconsin Research and Development Center for Cognitive Learning and Institute for the Development of Educational Activities (I/D/E/A), is essentially an organizational system that replaces traditional, self-contained classrooms with larger, nongraded units.

IGE was the only innovation to produce examples in this analysis for the first implementation response category, Staff Substitution. Most of the responses were to the discrepancy labeled Personnel. This discrepancy arose because IGE provided for centralization and specialization of teaching staff and the freeing of teacher time by hiring teachers' aides and secretaries to handle supervisory and clerical duties. The problem was that many of the schools implementing IGE found that they could not afford to hire these extra staff members, or that they were not permitted to hire them because the school civil service system did not include these positions. The most common adaptive response in implementation was to substitute parent volunteers to perform the duties of teachers' aides. One fortunate school was able to acquire sufficient funds to hire students from a local college to perform the duties on a part-time basis, in this way providing a more permanent solution to the problem.

Less fortunate implementation efforts were forced to adapt to the discrepancy in a less satisfactory way, however. These schools, apparently

unable to obtain even parent volunteers, resolved the problem by asking teachers to perform all of the duties. Since IGE in fact increases the clerical workload because of its program of extensive testing, this resolution placed additional duties on teachers. In some cases the piling up of duties lessened the enthusiasm and cooperation in the implementation effort on the part of teachers. It is possible that with advance warning and suggestions from an astute marketer, these schools would have managed to resolve their staffing problem in some more effective way.

Another example of a response included in the Staff Substitution category is a case in which the implementors did not want to set up a hierarchy among teams of teachers as provided by the IGE plan. A team cooperative effort was felt to be more functional in that particular implementation setting, and so the position of chief was rotated among all staff members in each of the teacher groups so that pay levels and responsibilities were equalized.

In the second implementation response category, Materials Augmentation, were coded responses associated with discrepancies labeled Adaptability, Completeness, and Materials. In one instance a school implementing IGE found a need for a guide to the reading materials used in its state so that it could use some of the instructional materials provided by IGE. The school was able to borrow the needed reference work from a neighboring school district. In two other instances, one involving Minicourses and the other MACOS, the subject matter coverage supplied by developers was felt by implementors to be incomplete. The adaptation in each of these implementation efforts was to supplement the product with materials of the desired type from other sources. In a final instance there was simply a delay in obtaining materials to be used in IGE implementation, and in this case other materials were substituted in place of those which were unavailable.

In the third implementation response category, Equipment Substitution, were coded responses associated primarily with the discrepancy labeled Materials, which was defined as concerning the availability of materials and equipment necessary to use an innovative product. Most of the instances in this category involved the implementation of Minicourses, which require the use of videotape equipment for complete implementation. Some schools simply did not have access to videotape equipment and were forced to substitute audiotape recorders instead; in one case, personnel brought in such equipment from their homes. In another case a supervisor "substituted" for videotape equipment, observing teacher performance in practice teaching and then providing feedback. Also placed in this response category was an adaptation associated with MACOS which involved converting 8mm films to 16mm so that the materials supplied by the developer would be compatible with the equipment owned by the school.

It is easy to see the value of this kind of information for development and dissemination. Since the developers of Minicourses state that the product can be effective when used with audiotape instead of videotape, this adaptation could be publicized in dissemination efforts targeted to schools that have a Materials discrepancy. In this way, the dissemination program could promote a solution that is likely to lead to effective implementation--as contrasted with solutions like the supervisor's "substitution" for the VTR, which might tend to defeat the Minicourses' emphasis on self-instruction for teachers.

Associated with the fourth implementation response category, Administrative Adaptation, were such discrepancy labels as Disruptiveness and Administrative Requirements. Two instances involved problems of scheduling people. The first was associated with implementation of IGE, which requires the combination of several different grade levels into a single group. In one state, different

hours of attendance were required for the different grade levels. This gave rise to complex and time-consuming management of attendance schedules. The second instance, associated with Minicourses, involved the difficulty of arranging times for teachers to leave their classrooms so they could participate in the course. The adaptation was that teachers developed closer cooperative working relationships so that an adequate schedule could be arranged.

Two other instances associated with Administrative Adaptation involved the scheduling of things. One was associated with the implementation of IGE and the other with the implementation of MACOS. Both cases of adaptation were necessitated by the sharing of instructional materials and supplies among schools within a single district. The adaptation was to modify administrative arrangements for such sharing until the shared materials were efficiently distributed.

There was a straightforward relationship between the fifth implementation response category, Funding Improvisation, and the discrepancy labeled Cost. There was an instance in which a school wished to implement MACOS but could not afford the product. The adaptation in this case was to share the cost among a number of schools in the district. In another instance a school implementing IGE could not afford to hire teachers' aides, but it managed to obtain a special grant from an outside source for this purpose. Outside funding was also the adaptation of a school implementing the Minicourse. The money was used to pay for released time for teachers to take the course. Again, the actions taken by these adopters could be passed on, through dissemination efforts, to other schools.

The sixth implementation response category, Implementation Delay, contained the largest number of cases and was associated with the greatest

variety of discrepancy labels. Virtually any kind of discrepancy could lead to delay. Cases assigned to this category lacked the positive, active adaptations which characterized cases assigned to the first five categories, and they also lacked some of the negative aspects of cases assigned to the seventh and eighth categories, Partial Implementation and Potential Abandonment. Discrepancies which merely caused implementation delays were those which were too severe for easy adaptation but too mild to block implementation permanently.

One group of cases assigned to the Implementation Delay category was associated with implementation of IGE. These cases arose because IGE is a relatively drastic restructuring of school organization, and, as such, it quite frequently engenders staff opposition. This problem was assigned the discrepancy labels Administrative Requirements, Reorganization, and Disruptiveness, and the response to the discrepancy was a slowing of the implementation process. This delay allowed the additional time necessary for ironing out difficulties and making the required role adjustments. There was time for constructive interaction between those teachers in favor of the innovation and those opposed. In some cases resistant teachers were gradually convinced of the merit of the innovation, while in others there was time for dissident staff members to leave the implementation site.

Delay as an adaptive response was also observed in implementation efforts when parental or community opposition to IGE surfaced. The discrepancy labeled Priority encompassed such instances of outside pressure. Slower adoption of the innovation in these cases allowed time for the gradual growth of the community support for the new program.

Delay in response to opposition from one or more of the constituencies of the innovation can serve a constructive purpose, but the same cannot be said for delay as a result of equipment problems. The delay may be no less necessary when occasioned by equipment problems, but it serves no healing purpose. Equipment problems labeled Materials discrepancies were most often encountered in association with the implementation of Minicourses. For example, in one case delay was caused because the videotape equipment kept breaking down. In another case, where the discrepancy was labeled Training, it was found that more time was necessary for training in the use of videotape equipment than had been estimated. In still another case delay was caused because no adequate space could be found in which to use the videotape equipment, a problem which was termed "Space." Equipment difficulties also arose in association with MACOS when implementation was slowed because a school could not obtain enough of the required film projectors. Since this kind of delay has no beneficial effects for adopters, the marketer should be able to anticipate the equipment problems that may befall schools, and the marketing "treatments" should include providing strategies for overcoming these problems.

Some final implementation responses which were coded in the Implementation Delay category were associated with Training and Priority discrepancy labels. These included cases where the existing school arrangements or plans were in some way inappropriate to implementing the innovation. One example, associated with implementation of IGE, involved a school in which teacher training for the innovation was conducted at the end of the school year prior to implementation. The teachers were exhausted in June, when the training took place, then after the summer recess they had forgotten much of what they had learned in the training.

This lack of adequate training caused the implementation process to go more slowly the following year. Delay was caused in another instance in which the implementation of IGE interfered with another complex innovation that had higher priority and was being implemented concurrently in the school.

The seventh implementation response category, Partial Implementation, is associated with discrepancies for which no other adaptation could be found than abandonment of a portion of the implementation effort. In one case, associated with the Personnel discrepancy code, implementors thought that the IGE program had not adequately specified the personnel required or their qualifications. During implementation it was discovered that the program had not been properly staffed, and the parts of the program dependent upon staff with certain qualifications had to be abandoned in the absence of the required staff. In another case there was a Theory discrepancy; implementors did not completely accept the rationale for IGE, and consequently they selectively implemented only those portions of the program compatible with the theory they endorsed.

In a similar case, associated with the Priority discrepancy label, it was found that implementation of MACOS conflicted with other innovations of higher priority for the district. The scope of the implementation effort was reduced, and MACOS was implemented on an individual basis by only a few enthusiastic teachers rather than by the district as a whole.

The eighth and last implementation response category, Potential Abandonment, includes cases in which an attempt had been made to implement the innovation, experience had indicated that discrepancies existed for which no long-term adaptation appeared adequate, and consequently abandonment of the implementation effort was being seriously considered. Several of these cases involved implementation of Minicourses. These were associated with such discrepancy labels

as Target, Subject Matter, Time Required, and Disruptiveness. In these cases teachers either resisted exposing themselves to criticism, believed the course level was too low or the subject matter not complete enough, thought too much time was required for the benefits received, or resented being absent from their classrooms in order to take the course. In each case it appeared that opposition was great enough to prevent further use of Minicourses in these implementation settings.

One other case of a Potential Abandonment implementation response was found in an implementation of IGE when a Developer discrepancy was present. In this case the implementors did not respect or trust the source of the program, and so they were suspicious of receiving any benefits from implementation. This attitude generated such a half-hearted and tentative implementation process that it appeared likely the effort would be abandoned.

The analysis reported in this section of the paper has been limited by the unsystematic nature of the data available. Nevertheless, even this relatively crude analysis has indicated that the discrepancy measure is capable of becoming a potentially rich and varied source of data for assessing the implementation of innovation in education. Through the device of uncovering discrepancies which may signal implementation problems, it also elicits information about the way the problems are resolved. This information not only increases the general fund of knowledge about the process of innovation implementation but also adds an important dimension to the work of dissemination. Based upon the experience of users of an innovative product, the later adopters can be enabled to make appropriate adaptations to improve their own implementation of the product. The next section of the report considers modifications that could be made in the measure to increase its effectiveness of implementation assessment.

## MODIFICATION OF THE DISCREPANCY MEASURE FOR IMPLEMENTATION ASSESSMENT

In its present form the discrepancy measure has certain limitations for purposes of its application to implementation assessment. Some of these limitations were discussed explicitly above, while others were barely touched upon. In this section the limitations of the measure for implementation assessment are considered more directly, and some potential modifications that might be made to overcome the limitations are discussed.

Without compromising the value of the measure for its original purpose of educational market analysis, there are a number of modifications that can be considered. One has already been discussed. This is to include a specific request for a descriptive statement concerning the adaptation or response to each discrepancy. The analysis has indicated that a great deal of information regarding adaptation to discrepancies happened to be collected in this study, but any modification of the existing measure for implementation assessment would include provision for more systematic collection of data of this nature.

In this section are suggestions for revising the measure in accordance with the critical incident technique, which offers a method of collecting data on complex topics from concerned observers, and which the present measure already resembles to some extent. In addition to exploring this methodological issue, the section suggests other dimensions of implementation assessment that could enlarge the measure's scope of inquiry. These include the timing of adaptation, the severity of the discrepancy, the centrality or radicalness of the adaptation, and the generality of the need for adaptation. With these modifications, the discrepancy measure could become not only a more valuable tool for examining implementation in schools but also, as explained below, an aid in generating still other measures.

Methodological Considerations

One of the present limitations of the discrepancy measure for implementation is inherent and therefore not subject to modification. This limitation is that the measure is primarily directed towards negative dimensions of implementation, that is, those implementation patterns that arise in response to problems. In the first section of this chapter, the ability of the discrepancy measure to assess negative aspects of implementation was mentioned as one of its major potential strengths. Paradoxically, the measure's major strength is also one of its major weaknesses because in its emphasis on the negative the measure tends to ignore positive aspects of implementation. But this lack of balance in the discrepancy measure would be a problem only if the measure were the only one applied to a given instance of implementation assessment. When used in conjunction with other measures, its emphasis could be balanced by the strength of other measures that assess positive aspects.

Other limitations of the discrepancy measure for implementation assessment are not inherent, however, and further development and modification of its methodological characteristics could overcome many of them. From a methodological point of view, in its application to implementation assessment the discrepancy measure can be seen as a variant of a measure known as the critical incident technique. For this reason information regarding the development and systematization of the critical incident technique can be used as a context for discussing the further methodological development of the discrepancy measure for purposes of implementation assessment.

The critical incident technique is old and quite basic to social science but was given a definitive specification by Flanagan (1954). The critical

incident technique does not consist of a single rigid set of rules governing data collection. It is rather a flexible set of principles which must be modified and adapted to meet the specific situation at hand, in this case the assessment of implementation. For any activity to be studied, knowledgeable persons are asked to describe observed behavior relevant to that activity, for example, incidents of effective or ineffective performance in a particular job. In this case the activity is innovation implementation, and the critical incidents are actions by school staff members in the implementation process. The essence of the technique is that only simple judgments are required of observers, reports are obtained only from qualified observers, and all observations are evaluated by the observer in terms of an agreed-upon statement of the purpose of the activity. The critical incidents reported are based exclusively on observable behavior, rather than interpretations or opinions based on general impressions, and the behaviors are those which are significant in terms of the activity being assessed. In short, the critical incident technique produces, first, a record of specific behaviors collected from those in the best position to make the necessary observations and evaluations, and second, an analysis of these observations.

Application of the critical incident technique in the context of implementation assessment would be analogous to some of its prior uses. It has been used to study operating procedures--for instance, what pilots do to avoid accidents in flying--with a view to improving the effectiveness and efficiency of these procedures. In a related application, the critical incident technique has been used to improve equipment design; after collecting and studying reported problems with aircraft instruments, researchers were able to recommend changes in the equipment. It seems clear that the technique could shed light on the operations that go into innovation implementation in schools and contribute to the design

of more readily implemented products. The observers in this case would be implementors, including district administration officials, principals and teachers. The observers would be reporting incidents of adaptive behavior in response to one or more discrepancies which emerged during the course of an implementation effort.

Basically five steps would be taken in order to design and use a discrepancy-adaptation measure as a critical incident technique in implementation assessment. The first would be to determine the goals of implementation, which is the activity for which the critical incidents would be formulated. The second would be to develop plans and specifications for collecting the actual discrepancy and adaptation incidents. This would include drafting clear instructions for persons acting as observers in reporting the critical incidents. The third step would be to collect the critical incident data, either by personal administered questionnaire, in a more systematic manner than in the present study. The fourth step would be to analyze the data, which would involve establishing categories and codes for the discrepancy and adaptation incidents like those presented in the previous section of this report. The fifth step would be to interpret and report the critical incidents identified in implementation.

In this progression several methodological problems would have to be overcome. The criteria to be used in reporting the discrete instances of behavior must be made clear to observers. In some cases the implementation process may be very complex and confusing even to those participating. There might even be situations in which observers would need some training before they became qualified to collect appropriate incidents.

A closely related problem would be the selection of one or more levels along the specifity-generality continuum for use in reporting the adaptation incidents, both in the process of collecting the incidents and in later phases of analysis and final reporting. That is, it should be determined whether the type of incident sought would be "a radio advertisement asking for parent volunteers was broadcast," or "parents were brought in." A final methodological problem to be overcome would be the inductive development, during analysis, of a set of major area and subarea headings in devising a classification scheme for the implementation adaptation incidents. The classification scheme devised would have to be appropriate both to the implementation setting and to the needs of the assessment, bearing in mind its application in the study of implementation and in market analysis.

If it is developed in this way, to reflect more directly the critical incident technique, the discrepancy measure might also serve the ends of implementation assessment by actually helping in the development of other measures. In many educational settings measurement instruments are unsatisfactory in part because the behaviors they purport to measure are specified a priori (Mayhew, 1956). A priori specification may be a particularly dangerous procedure in the assessment of implementation, because it is often difficult to determine beforehand in what directions the implementation process will move. The critical incident technique is of potential value in implementation assessment precisely because the incidents are not categorized until after they have been collected. But beyond that, such a measure is of potential value because it provides empirically derived classifications of behavior which can then be used either as a framework for subsequent measurement or as the materials out of which other instruments can be developed.

An adequate collection of critical adaptation incidents could place categories of implementation behavior on an empirical base, providing for greater validity in any subsequent measurement instrument. If enough critical incidents could be collected, reasonably complete categories of effective and ineffective implementation behavior could be derived. Of course it must be remembered that a discrepancy measure used alone will only yield incidents that are associated with discrepancies, or "snags" in the implementation process. However, as discussed above, two or more complementary measures can be employed to assess a more complete array of behaviors. The derived categories of behavior could be used either for a check list, a rating scale, or one axis of an objective test in subsequent instruments. The critical incidents of adaptation could also serve as a general source of empirically derived raw material out of which subsequent specific questionnaire items could be drafted. This would meet a need for assessing the implementation situation in words and concepts that are meaningful to the implementors.

Content Considerations

Although this paper has indicated that the discrepancy measure yields rich data for implementation assessment, it has also acknowledged that the measure in its present form does not encompass all dimensions of potential interest in implementation assessment. This portion of the report discusses some of the additional dimensions which might be added as the discrepancy measure is modified for purposes of implementation assessment. These include the time of the discrepancy and/or the adaptation, the severity of the discrepancy, the centrality of the adaptation, and the generality of the need for adaptation. Such refinements would be added by providing instructions to observers, or structuring questions in interviews or questionnaires to

include additional dimensions of the implementation process.

For purposes of implementation assessment, one feature currently lacking in the discrepancy measure is the dimension of time. Implementation is an attempt to change behaviors in some way, so an assessment of implementation must as a basic step assess whether a change has taken place. One means of doing so is to administer a pretest measure to collect data to compare with outcomes obtained with a posttest measure. A more sophisticated approach would obtain one or more interim measures as well so that a more sensitive assessment of the entire process of implementation could be made.

But as a marketing analysis technique the discrepancy measure would usually be administered only once in a given field setting. For implementation assessment purposes, then, it would be important for the measure to identify and distinguish among the various time contexts in which the discrepancies and adaptation incidents could be reported. A discrepancy may exist at any time during the implementation process. The measure would need to determine the relationship between the time the discrepancy arises and an adaptation is made in response to it (if this occurs), and the time of report. The discrepancy and/or adaptation may be reported in an anticipatory time context, a concurrent time context, or a retrospective time context. Each time context of report has its own particular bias, and any analysis or interpretation of findings would need to be cognizant of these biases. An anticipatory time context may produce bias because it is not always possible to project accurately and clearly. A concurrent time context, because of the observer's proximity to the situation, may produce such biases as an exaggeration of the severity of the situation. A retrospective time context probably produces the greatest accuracy of report, but factors of selective retention can produce distortion through passage of time.

Another content modification that might be introduced into the discrepancy measure for purposes of implementation assessment would be a more detailed determination of the degree of severity of each discrepancy. As presently constituted, the discrepancy measure does assess degree of severity on a three-point scale, but an assessment of implementation would benefit from a somewhat different kind of determination, covering not just the perceived severity of the discrepancy as it arises, but also the feasibility of making an adequate and lasting accomodation to the discrepancy. A problem which originally looms as a formidable one may in fact be very effectively overcome, and the measure should provide an accurate record of such a case.

Thus, one way of determining degree of severity would simply be to collect more information regarding the discrepancy and its corresponding adaptation. This information could then be used to construct a more complex scale during data analysis. One dimension along which such a scale could be constructed is the degree of permanence of the most feasible adaptation. Severe discrepancy might well be indicated even in a situation in which an adequate adaptation had been formulated, if the adaptation was adequate for only a limited period of time. An example of such a situation is that in which necessary funding can be obtained only on a temporary basis. End points along this scalar dimension might be a discrepancy for which an adequate and permanent adaptation can be formulated, and at the other end of the scale, a discrepancy for which no adaptation is adequate on even a temporary basis.

More information would need to be collected so that other distinctions among adaptations could be made during analysis. One important distinction is a determination of the "centrality" of an adaptation with respect to the innovation as it was designed. In adapting an innovation to "save" it and make it feasible for their environment, implementors may move the innovation

through a single drastic adaptation or a series of small adaptations so that it loses salient features of the original design. In moving away from the model as originally defined to construct a model of their own through adaptation, the implementors may so radically alter the innovation that it can no longer be considered the same innovation. Such an implementation process, while it might be considered a success by the implementors, could be viewed as a failure by the developers of the innovation who see a result so far from their intention. Therefore, information pertaining to this centrality dimension in implementation assessment can have important meaning for developers as well as market analysts. When radical adaptation tends to occur, the marketer can try to devise treatments that will give adopters other options that are more faithful to the original design. And if this proves ineffective, the developer might return to the drawing board and produce a product that can satisfy both his conception and users' apparent preferences.

In case developers are inclined to be so flexible, the data should permit a distinction between a general adaptation and an idiosyncratic adaptation, or a determination of where the burden of adaptation should lie. The term "burden of adaptation" refers to the locus of responsibility for changing the design of an innovation in response to implementation problems. In the case of an idiosyncratic adaptation the responsibility lies with the implementors. The designers of an innovation cannot be expected to have made their product amenable to all particular implementation settings. But they can be expected to have made their product adaptable to common kinds of settings, and in the case of a general adaptation the burden of adaptation shifts to them. The

ability to make distinctions of this nature in data collected by means of the discrepancy measure might allow an implementation assessment to explain, for example, whether a case of failure to implement was primarily the "fault" of the innovative product or of the school. Such an analysis would, of course, be highly meaningful for developers, dissemination specialists, and school personnel. It would also have to be conducted very carefully, so as not to draw any unfair and injurious conclusions.

This section of the report has described a few dimensions which could enhance the utility of the discrepancy measure in implementation assessment. By including considerations of time, severity, centrality, and generality, the measure could yield a more comprehensive picture of implementation which would have important uses for the marketer; yet these modifications would not make the measure very much more complex to develop or administer.

## CONCLUSION

This report has explored the possibility of using the discrepancy measure to assess the implementation of educational innovations. The data thus generated would have value not only in the general field of implementation assessment, but also in the context of dissemination. The marketer, knowing how adopters have behaved when confronted with the challenge of particular discrepancies, is in a better position to deal with the non-adopters who experience the same discrepancies. He can try to design a marketing campaign that will lead to adoption and, beyond that, to effective use of the innovation through constructive adaptation.

The first section of this report considered the discrepancy measure in the general context of implementation assessment and indicated that the measure makes a potential methodological contribution in this area. Furthermore, the measure provides or could provide data on virtually any implementation variable. An analysis of existing data, in the second section of the report, indicated that even in its present form the measure generates relatively rich data on implementation and permits a rough classification of different implementation behaviors. A number of modifications which could be made in the measure to make it even more suitable for the collection of implementation data were discussed in the third section of the report.

Although problems remain in attempting to use the discrepancy measure in the new area of application, certain unique strengths of the measure in the context of implementation assessment indicate the potential value of this

exploration. Valuable data concerning implementation could be collected at no greatly added cost in the course of marketing analysis, thus adding another function to the discrepancy measure and a further dimension to the analysis. This and other considerations lead to the conclusion that the discrepancy measure's potential in the area of implementation assessment merits continued exploration.

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# Appendix A:

## DISCREPANCY CODE WORD DEFINITIONS

The following is a list of 34 potential discrepancies used to characterize schools. Each is presented with a sample test item. Items will vary depending on the nature of the product and the ways discrepancies may occur. For example, the item under "Sequential" will be stated differently when it is in reference to a curriculum which is not sequential from the way it is stated to detect discrepancies with MACOS, which is sequential. Also, they will usually be stated differently for adopters and non-adopters. For one thing, adopters cannot give a response which is scored "3" (discrepancy would prevent adoption). The sample items listed here represent a variety of circumstances and include adopter and non-adopter versions, and versions for the three different products. For example, the item for "Adaptability" is the version which would be used with a MACOS adopter; the item for "Administrative Requirements" is the version which would be used with an IGE control (non-adopter).

Adaptability -- Degree to which product is adaptable; amenable to revision for specific purposes of purchaser.

Did you or others at this school feel that the materials or methods of Man: A Course of Study would have to be changed (i.e. modified or adapted) to better fit your needs?

____Yes

____No

Did you perceive that it was, in fact, sufficiently adaptable, i.e. could you easily change it in the ways you deemed necessary?

____Yes

____No, but this wasn't important to us.

____No, it seemed somewhat unsatisfactory in this regard.

____No, it was extremely unsatisfactory in this regard. We almost did not adopt it for this reason.

Administrative Requirements -- Adequacy of present administrative capability for implementing product.

Consider a teaching system which requires the following kind of administrative arrangement: an organizational system that replaces traditional, self-contained classrooms with larger, nongraded units. In each unit, a unit leader, two or three staff teachers, a first year teacher, a teacher aide, an instructional secretary, and an intern work with 100-150 students in a three or four-year age span. Unit leaders and building principal make up an instructional improvement committee and define the school's goals. At the district level, a systemwide policy committee (central office administrators and consultants, principals, unit leaders and teachers) develops policy guidelines and coordinates the use of human and physical resources.

Thinking about this school, and the decision makers here, do you think there would be any special problems converting to this arrangement (aside from the obvious problem that this is a major move which would require careful consideration)?

_____ I don't think our school would have any special problems not faced by any other school.

_____ We might have more difficulty than other schools would.

_____ We would definitely have much more difficulty using this arrangement.

_____ We could never implement this arrangement here.

Bandwagon -- Extent of and importance of knowledge of others' use of product.

When you adopted Man: A Course of Study, did you know of other schools which had adopted it before you did?

_____Yes

_____No

Was this a factor in your decision to use the program?

_____No

_____Yes, it influenced us to adopt.

_____Yes, it was the basis of some of our doubts about the program.

_____Yes, it almost kept us from deciding to use the program.

Complete/Supplementary -- Desirability of Complete (v. Supplementary) Curriculum.

Which of the following best describes the scope of elementary (5th-6th grade) social studies materials this school could use now?

____We need only supplementary materials--we definitely would not adopt a complete program at this time.

____We need only supplementary materials--we probably would not adopt a complete program at this time.

____We need only supplementary materials, but we would also consider a complete program.

____We need a complete program.

Core/Elective -- Degree to which product fits in with existing curriculum or other structure.

Which of the following statements is an accurate description about the teaching of elementary (5th-6th grade) social studies at this school?

____This has been well-established in the school's schedule of activities. Definite times and places are set aside for regular lessons.

____Elementary (5th-6th grade) social studies has not been regularly scheduled, but it has been carried out on an irregular basis.

____This has not been taught at this school, even on an irregular basis.

____This has not been taught and there is resistance to teaching it.

Cost -- Availibility of financial resources for purchasing and implementing product.

Consider that start-up cost for a Minicourse is $1500. In addition, it costs about $3 per teacher plus 15 hours of release time to use. The course can be used year after year with all elementary teachers. Does this price seem reasonable?

____Our school could easily work out some way to manage this.

____Our school could work out a way to manage this, but not easily.

____Our school probably couldn't work out a way to manage this.

____We could not afford this under any circumstances.

Demonstratability -- Degree to which product can be demonstrated prior to purchase.

Was it required for someone at the school to see Man: A Course of Study demonstrated before the school could decide to use it?

____Yes

____No

Was it easy to arrange to see a demonstration?

____Yes

____No, this was a bit of a problem.

____No, this was a major problem.

Did you see a demonstration?

____No

____Yes
Was it satisfactory? (Check one) ___Yes; ___No, it was somewhat unsatisfactory; ___No, it was highly unsatisfactory.

Developer -- Degree of respect or trust in developer of product.

Which of the following is the feeling in this school about the Far West Laboratory for Educational Research and Development?

____I never heard of it--so I really can't say. My predisposition is to figure it's a reputable organization.

____It's a reputable organization; and the products it develops are high-quality.

____We have our doubts about products developed by the FWL, but most are probably OK.

____We don't trust FWL products.

____In this school, FWL products would not be adopted.

Disruptiveness -- Degree to which product creates or stimulates latent or existing problems such as threatening teacher or student discipline.

Consider that an elementary (5th-6th grade) social studies program is a complete, year-long program which teaches cultural anthropology and uses an inquiry approach. Such a program may be disruptive in various ways. For example, it may displace other activities, it may disrupt teacher-teacher or teacher-student relationships, it may disrupt the day-to-day schedule of activities, etc. In this school, do your feel such a program would be disruptive in those or other ways?

____No

____Maybe, but I wouldn't predict that there would be very extensive disruption.

____Yes, I'd expect this to be very disruptive in some or all of those ways.

____Yes, this would be extremely disruptive.

Divisibility -- Degree to which product can be used in part.

In this school, is it the usual practice to use just part of a new program, on a limited or trial basis, before you actually decide to adopt the entire program?

____No, we don't usually do this.

____We like to do this, but we frequently make exceptions.

____Yes, this is our usual practice; we almost never make exceptions.

____Yes, this is our practice. We never make exceptions.

Early/Late Feedback -- Appropriateness of speed with which information regarding effect of product (i.e. evaluation data) is obtainable.

When a new product or program is adopted by this school, at what point in time is it best to actually be able to see the results?

____We don't need to see such early results--we can wait a year for that.

____We like to see results before the end of a year of use, but this is not necessary.

____We want early knowledge of results; after 3 or 4 months of use.

____We need quick feedback--we have to see results after a month or so of use.

Effect -- Appropriateness of major effect or objective of product.

Consider an elementary (5th-6th grade) social studies program which increases "ability to reason" and knowledge of cultural anthropology. Would this kind of program be adopted at this school?

____This is the type of effect we would want in a 5th-6th grade social studies program.

____We want some other thing(s) not offered by this kind of program, but it's basically what we would be looking for.

____We would hope to find something other than this to use here.

____We wouldn't adopt a course like this.

Evaluation -- Acceptability and importance of evaluation data regarding product presented by developer.

When considering a new curriculum, what kind of evaluation results does this school need to see before you can decide?

____We don't need to consider evaluation results.

____We need to see teacher and student changes documented in whatever way the evaluator chooses.

____Usually, we need to see results on standardized tests.

____We almost always need to see results on standardized tests.

____We always need to see results on standardized tests.

External Support -- Feasibility of outside (e.g. federal) funding sources to support purchase and implementation of product.

In some schools, there is the chance to get outside funding support (e.g. Title I, III) for adopting inservice training materials. What is the situation in this school?

____We wouldn't need any outside funding for this here.

____We could easily get the outside funding support necessary for this kind of adoption.

____We probably could not get the outside support we'd like, although this would not prevent us from adopting.

____We probably could not get the outside support we'd like, and this would probably prevent us from adopting.

____We couldn't get outside support for this, and this fact keeps us from adopting.

Horizontal/Vertical -- Appropriateness of design of product for one grade level or for successive grade levels.

Which of the following is an accurate statement about the kind of 5th-6th grade social studies program that would be adopted here?

____We want a social studies program tailored specifically to those grade levels.

____Right now, we have a slight preference for a program which is usable for all or most other social studies classes at other grade levels.

____We have a definite preference for a program which cuts across all (or most) of our grade levels.

____We would not adopt anything tailored specifically for 5th to 6th grades.

Information -- Availability of information about product.

What is your estimate of the number of people in this school who may have heard of it (Man: A Course of Study)?

____Virtually everyone.

____About half.

____Very few.

____No one.

Materials -- Availability of materials necessary to use product.

A small, closed-circuit videotape system costs $1800 to install. Does this school have access to one?

____Yes

____No, but we could easily manage to install one or get access to one if we found we needed it.

____No, it would be difficult for us to install one or get access to one, even if we needed it.

____No, and we almost cetainly could not install one or get access to one.

____We definitely could not install one or get access to one.

Peer Opinion -- Degree to which teachers, other teachers, approve of product.

What do you perceive to be the feeling in other schools with which you have contact as regards the teaching of cultural anthropology to 5th and 6th grades?

____Highly valued.

____Valued, but not highly.

____Not valued.

____Don't know.

Would their feeling affect whether you would want to teach it?

Personnel -- Availability of adequate and adequately trained personnel for use of product.

Inservice training frequently requires coordination by some district or building level person--usually a curriculum specialist. Would this be a problem in this school?

____No--we could get a coordinator.

____This would be a minor problem, but I expect we could find someone.

____This would be a major problem--we probably couldn't find anyone to do this.

____We would not be able to find a coordinator for inservice training.

Priority -- Degree of pressure to adopt alternative products with higher priorities.

Right now, are there pressures on you--either direct or indirect--to make specific adoptions. (Interviewer: here we're getting at priorities of outsiders which are competing with Minicourse and IGE).

____No

____Yes, what?

(How strong are these pressures?)

Product/Process -- Degree of necessity of adopting a method as opposed to adopting just materials which would fit any or an existing method.

In this school, would there be any objection to adopting materials which require that you develop your own program for using them, i.e. as opposed to adopting a method along with the materials?

____There would be no objection.

____There would be some objection, but such materials could be adopted anyway.

____There would be much objection--we would probably not make such an adoption.

____There would be much objection--we definitely would not make such an adoption.

Programmed -- Appropriateness of degree to which product is programmed.

What is the feeling in this school about the use of programmed learning?

____We always use only those methods and materials which involve programmed learning, at least to some extent.

____We usually use only methods and materials which involve programmed learning, at least to some extent.

____We prefer to use methods and materials which involve programmed learning, but we frequently make exceptions.

____We prefer to adopt methods and materials which do not involve programmed learning.

____Doesn't matter either way.

Purchase Accessibility -- Acceptability of conditions for purchase; ease of actually obtaining product; possiblity of cooperative sharing with other schools.

Is it difficult for this school to go through the mechanics of making a major purchase from a major publishing company (e.g. MacMillan)?

____No, once we've decided to make the purchase, we have no problems getting what we want from the publisher.

____Yes, this involves a certain amount of hassle for someone in the school.

____Yes, this is a major hassle for someone in the school.

____Yes, this is such a problem, we don't ever do it.

Reorganization Required -- Degree to which product requires changes in purchasing unit.

In this school, would adoption of a new elementary (5th-6th grade) social studies program require reorganization of an already-existing inservice program?

____No

____Probably not, since our present program is very flexible.

____Yes, it would probably require some minor reorganization.

____Yes, it would probably require some major reorganization.

____Yes, it would probably require abandoning the present program.

Self-Sufficent -- Extent to which product is complete as is, degree to which product is "teacher proof."

In this school, is there any resistance to programs and materials which are dependent on teacher and/or administrator abilities for their success?

____No

____Yes, there is some resistance.

____Yes, there is much resistance to such programs.

____Yes, such programs are never adopted here.

Sequential -- Appropriateness of required pre-requisites to use of product.

What is the feeling in this school about whether units of a one-year elementary (5th-6th grade) social studies course should be sequential?

____In itself, this is not important one way or the other.

____We would prefer that such a course be sequential.

____We prefer a course which is not sequential but we could also use a course which is.

____We are unlikely to use any such course if units are sequential.

____We would not adopt a course with sequential units.

Space Required -- Appropriateness of amount and kind of physical space required for use of product.

In the 5th-6th grade classrooms in this school, is there room to store two bookcases of materials for social studies?

____Yes

____Not really, but we could manage to find room.

____No, it would be very difficult to find room.

____No, it would be impossible to find room for this.

Structured -- Appropriateness of degree of flexibility of curriculum.

What is the attitude in this school toward using programs which are unstructured, i.e. no predetermined, set procedures?

____This approach is acceptable to everyone.

____Some object to this, but this probably would not prevent us from adopting such a program.

____An unstructured program probably would not be adopted here.

____An unstructured program would not be adopted here.

Subject Matter -- Degree of appropriateness of subject matter.

What is the attitude at this school regarding the teaching of cultural anthropology?

____Most consider that the teaching of cultural anthropology is one of our highest priorities.

____The teaching of cultural anthropology is not of the highest priority for most although it is considered important.

____This is not really a priority--the school is more concerned with many other areas at this time.

____No one is concerned at this time with teaching cultural anthropology.

Target Group -- Appropriateness of product's stated target group to district's stated needs.

What is the feeling in this school as regards the need for improving teaching at the 5th and/or 6th grade levels (all abilities)?

____There is agreement that there exists a high priority need to do something for one or both of these grade levels.

____Improvement for one or both of these grades is desired but not of the highest priority.

____Improvement for one or both of these grades is not even a significant priority--the school is more concerned with other matters at this time.

____No one is concerned at this time with improvement at one or both of these grade levels.

Theory -- Compatibility or acceptability of theory on which product is based.

What is the feeling in this school about individualized instruction?

____General agreement that this is a valid, effective approach.

____Some do not agree with this approach.

____Most do not agree with this approach.

___Virtually no one agrees with this approach.

Time Required -- Appropriateness of time required for use of product.

Consider that a specific elementary (5th-6th grade) social studies course is designed as a one-year course (one lesson per day). Is this the schedule this school would want for such a course?

___Yes

___This does not exactly fit our needs, although we could use it.

___No, we probably could not use this.

___No, this is way off base; we would not adopt it.

Training Required -- Degree of acceptablility of amount of teacher training required for effective use of product.

Consider that an elementary (5th-6th grade) social studies program requires 30 hours of training for teachers; would this be considered a problem at this school?

___No, not at all.

___Yes, but only a minor one.

___Yes, such a requirement would probably prevent us from deciding to use the course.

___Yes, we would never adopt a course with those training requirements.

Unit of Adoption -- Level at which adoption decision must be made, ranges from individual teacher, to district level decision; may be independent of level of use of product.

For this school, who must be involved in the decision to adopt elementary (5th and/or 6th grade) social studies materials? (Check as many as apply)

___Superintendent or Assistant Superintendent

___Principal or Assisstant Principal

___Teachers

___Other (Specify:_____)

Would you have this any other way?

____No

____Yes, but the present system is adequate.

____Yes, the present system causes serious problems when we need to make such an adoption.

____Yes, the present system makes it impossible for us to adopt the product we need.

# APPENDIX B: PRODUCT DESCRIPTIONS*

Minicourses are self-contained, multimedia packages designed to develop specific competencies for elementary school teachers. Based on a process called microteaching, each Minicourse focuses on a set of carefully defined skills which make up a teaching strategy. The teacher practices the skills in short, videotaped sessions with a few pupils. In each of the series of seven Minicourses, the teacher first reads in a handbook about the behaviors to be learned; then he views an instructional film in which these skills are demonstrated; next a model film tests his ability to identify each of the skills. The teacher then practices the skills, usually with a small group of pupils, in a microteaching session that is videotaped for self-evaluation. After evaluating his performance, the teacher videotapes his second effort to use the new skills in a microteaching situation. This process is repeated in each of the four or five lessons that comprise each Minicourse.

In Minicourse 1: Effective Questioning, participants learn skills which increase the amount and quality of pupil involvement in class discussions. Teachers learn techniques such as pausing, redirection, and prompting.

The Minicourse represents a significant departure from traditional approaches to inservice teacher training. It is self-instructional, self-contained, multimedia, and targeted to highly specific skills. The first change it demands from most schools or districts is in their budgets, since start-up costs are high and few districts have a substantial line item for teacher training. The Minicourse also requires sophisticated hardware that is not found in all districts. Scheduling and coordinating the microteaching

*From Turnbull, Brenda J., Thorn, Lorraine I., and Hutchins, C.L., Promoting Change in Schools. San Francisco: Far West Laboratory for Educational Research and Development, 1974.

sessions requires the part-time efforts of a designated staff member, and usually the schedule is set up in such a way that released time and substitute teachers must be provided.

Man: A Course of Study (MACOS) focuses on three questions:

What is human about human beings?
How did we get that way?
How can we be made more so?

The multimedia student materials have been created from ethnographic film studies and field research. Using these sources, classroom teachers and students explore the roots of man's social behavior through the study of selected animal groups and an intensive examination of the Netsilik Eskimo society. The curriculum is designed so that organizing ideas are introduced early and recur periodically. Social science skills are emphasized. Students simulate the anthropologist's methods of observation, data collection, hypothesizing, problem finding, and problem solving.

This curriculum does not fit into a traditional subject area for schools, since it contains material from anthropology, natural science, and other disciplines. Some of the material on evolution and reproduction proves controversial in some communities. Teaching with MACOS can demand an unusual amount of flexibility. The initial cost of this multimedia curriculum appears high, especially since inservice training is required. However, several potential impediments to adoption have been addressed by the publisher: the training covers both the unfamiliar content and the new methods, and the price can be lowered through deferred payment for the materials and various special arrangements for the training.

IGE alters the traditional organization of schools. Instead of one autonomous teacher in each classroom, there are teams of staff members working with large, nongraded groups of pupils; decision making becomes cooperative, with a system of staff committees at different administrative levels. Instructional processes change in the direction of individualized, diagnostic-prescriptive methods. In adopting IGE, a school commits itself to a thoroughgoing program of inservice training in which the staff learns to work in the new task structure.

The multiunit organizational plan replaces traditional, 25-pupil classrooms with larger, nongraded units. Each unit has 100 to 150 children in a three- to four-year age span, and instruction is handled by a team of a unit leader, two or three staff teachers, a first-year teacher, and an aide, helped by a secretary and an intern. The unit leaders work with the building principal as an Instructional Improvement Committee that defines the school's goals. Policy development and resource management are handled at the district level by a Systemwide Policy Committee, which includes principals and some unit leaders and teachers, along with central staff.